

Apply the liquid manure from a water barrel or cart provided with a distributor, such as you see used in watering the streets. The precise quantity per acre is not material, as at ordinary pace you will apply a quantity which you will repeat over the same area of grassland to suit your own convenience. You must, however, apply the liquid during wet weather, as otherwise even a little would burn up your grass.)

Dressed Lambs are not wanted in hot weather and sell poorly at \$1.75 a 2.25 each, in leading wholesale markets.

Food and milk.—Says the "Dairy-Records" of the Michigan Experiment Station: "The effect of any change of food is exhibited most often in the amount of the milk yield, rather than in its quality." Very likely; but that is an avowal that it is not unusual for a change of food to exhibit its effect in the quality of the milk.

Argon.—Professor Ramsay, University College, London, Eng., quite recently discovered a new element in atmosphere. What Argon is, more than a third constituent of the atmosphere; what are its uses, virtues, propensities; what part it performs in the economy of nature, nobody yet knows. All that is yet known of it is that there is such an element in the atmosphere; that it is not a vague fraction of the bulk of the whole, but is as one in one hundred and twenty-five of the bulk of the air; that in every room there are pounds of it, gallons of it. Argon is now being sent to chemists all over the world by parcels-post. Until this discovery, air was represented by the symbol $N_2 O_2$; but now, it has been found necessary to add A_1 to the symbol, which now reads $N_2 O_2 A_1$. Well might Socrates say that he had learned enough to know that he knew nothing! How we envy those who are just born into this marvellous world; for the next century will see very wonderful things.

England's wheat-crop of 1895 seems to have been very fine in quality, though the yield was nearly 3 bushels below the average of 29.90 bushels to the imperial acre. Millers there say that the samples hitherto delivered are the best since 1887, and even as good as those of that marvellous wheat year, 1868. There is still a great deal, comparatively speaking, of the 1894 crop left, and as that has been standing in the stack for some 16 months, its quality is so much improved that it goes into market on equal terms with the crop of '95. But how can times be so bad for the English farmers if "a considerable reserve" of wheat has been kept back for more than a twelve-months?

Horses' mouths are not frost-proof. Chopping off their tails and shaving the hair off the stumps is bad enough, but how much suffering is carelessly inflicted on the poor brutes by putting cold bits into their mouths. Just let any one try the effect of putting his tongue to a piece of iron in a frosty morning, and see how he likes the sensation! Not much trouble, one would think, to put the bit in one's pocket for a few minutes.

Why Canadian farmers prosper.—According to Prof. Saunders the Canadian crops are very much superior in yield to the crops of the United States:

The average wheat crop of the U. S. yields 12.3 bu. p. a.; Canada 14.6 Barley, U. S., 21.4; Canada 24.7 Oats, U. S. 25.1; Canada 28.7. Value of cattle exports in 1875, \$1,000,000, 1892, 7,500,000. Cheese exports in 1894, \$4,000,000; 1894, \$12,000,000 Canada now supplies 46 per cent of all the cheese used in Great Britain, and exports more of this commodity than the entire United States.

Carbohydrates.—Says the U. S. "Handbook of the Expt. Stations," a propos of carbohydrates: "They are not permanently stored up as such in the animal body, but are either stored up as fat, or burned in the system to produce heat and energy." Just so but it has taken the Expt. Stations a long time to find out what Lawes found out 50 years ago.

Comparison of different foods.—The following, from the *Country Gentleman* is a fair estimate of the different values of vegetables as animal food. Still, the price of bran seems to us to be put too high. We do not believe in it as a food when it costs more than at most \$14 a ton. And the writer of the answer seems to forget that the potatoes need cooking, to burst the starch-cells, whereas swedes (*rutabagas*), and cabbages, are quite as profitable uncooked as cooked. Any how, the weight that can be raised on an acre of land is a large factor in the value of any crop, and we hold that it is as easy to grow 30 tons of cabbages on an acre as it is to grow 20 tons of swedes on the same superficies.

Comparing Different Foods.—I lease give relative feeding value for milch cows, of cabbage, potatoes and swedes, compared with wheat bran at \$18 a ton.—G. P. S., *Marathon, N. Y.* [The only method of estimating the relative nutritive value of cattle foods that is to any degree exact, is on the basis of the digestible material which they contain. In comparing foods of the same class, this method must be fairly accurate, and in any case, no better way seems to be available. Applying this method to the foods about which inquiry is made, we get the following results: A ton of bran contains on the average 1200 lbs. of digestible material. With the bran at \$18 per ton, the digestible material costs 15 cents per lb. Potatoes contain on the average 352 lbs. of digestible material in one ton, and rutabagas 164 lbs. At 15 cents per lb. for digestible substance a ton of potatoes would be worth \$5 28, or 16c. per bu., and rutabagas \$2.46 per ton, or 7½c. bu. Calculated on the same basis, the cabbages would be worth about \$2 25 per ton. The prices seem small, but are doubtless fairly correct. Two and two make four in animal nutrition as in every other relation. It should be remembered, however, that a small proportion of roots added to a dry ration may yield a return all out of proportion to these prices, not because of the actual potential energy contained in them, but because of their general beneficial effect on the health and appetite of the animal.]

In England, as a general rule, no ordinary farmer ever thinks of rearing a heifer's first calf. Of course, this does not refer to a farmer who keeps thoroughbreds. We used to allow the first calf to suck the dam; thinking, and probably with reason, that it improved the udder and teats, and packed the young one off to

market as soon as it was fit to kill. But, Mr. Marvii James, as the following will show, holds that there are good practical reasons for this proceeding, and evidently speaks from experience.

"Marvin L. James of Shubert, Neb., writes the 'Practical Farmer' that it is his experience that the first calf of a heifer does not as a rule make as good a cow or show after breeding power as highly as the calves which are born at a mature period. He says a cow may improve each year for several years after her first calf is born, and each heifer calf being as good as herself, at the time of birth will consequently be an improvement over the one preceding it. On the other hand, take the heifer calf from a two-year-old heifer, then the heifer calf of heifer No. 2, and so on, and there will be no improvement whatever, or in other words, there would never have been any dairy cattle under those circumstances." Any man who has looked carefully into this would rather pay twice for the calf of a fully developed dairy cow, say seven years old, than have the other sort as a gift.

Clover-sickness.—Our old friend, Mr. William Hale, of Sherbrooke, used to be a profound sceptic as to the existence of what is generally called "clover sickness"; in other words, he did not believe that the too frequent sowings of the red-clover had the effect of making the land refuse to grow the plant at all. Does he still disbelieve in the disease? If so, perhaps the following extract from the *Country Gentleman* may convince him that there are many farmers, in many States of the Union, that agree with the editor of this periodical:

"C. O. F.," writing from the Rhode Island Experiment Station, mentions the fact (p. 643) that in New-England, "clover seeding often fails to catch and produce a good crop. Failure is so often the rule that farmers have gotten out of the way of sowing any clover at all." "I. P. R.," writing from the New-York station in regard to "clover running out," says (p. 611) that "not only in Maryland, but in New-York as well, much clover seed has failed during the present season and clover is becoming more and more precarious as a hay crop." He adds: "One is led to suspect, from the many letters that reach us on his subject, that possibly the land is becoming what is called 'clover-sick' although so far as we know nothing of that character has ever been noticed in the United States, although it is quite common in England."

"It was through experience with land that had grown repeated crops of clover and potatoes in close rotation for many years, that I was led to try rye in connection with a leguminous crop other than clover—the latter having become so uncertain that no rotation could be maintained."

Preserving a Good Road.—The London (Eng.) Road Improvement Association has issued the following rules for keeping Macadam and Telford pavements in repair:

1. Never allow a hollow, a rut, or a puddle to remain on a road, but fill it up at once with chips from the stone heap.

2. Always use chips for patching and for all repairs during the summer season.

3. Never put fresh stones on the road, if by cross-picking and a thorough use of the rake, the surface can

be made smooth and kept at the proper strength and section.

4. Remember that the rake is the most useful tool in your collection, and it should be kept close at hand the whole year round.

5. Do not spread large patches of stone over the whole width of the road, but coat the middle or horse track first, and when this has worn in, coat each of the sides in turn.

6. In moderately dry weather and on hard roads always pick up the old surface into ridges six inches apart, and remove all large and projecting stones before applying a new coating.

7. Never spread stones more than one stone deep, but add a second layer when the first has worn in, if one coat be not enough.

8. Never shoot stones on the road and crack them where they lie, or a smooth surface will be out of the question (1)

9. Never put a stone upon the road for repairing purpose that will not freely pass in every direction through a two inch ring, and remember that smaller stones should be used for patching and for all slight repairs.

10. Recollect that hard stones should be broken in finer gauge than soft, but that the two-inch gauge is the largest that should be used under any circumstances where no steam roller is employed.

11. Never be without your ring gauge; remember Macadam's advice, that any stone you cannot easily put into your mouth should be broken smaller.

12. Use chips, if possible, for binding newly-laid stones together, and remember that road sweepings, horse droppings, sods or grass and other rubbish, when used for this purpose, will ruin the best road ever constructed.

13. Remember that water-worn or rounded stones should never be used upon steep gradients, or they will fall to bind together.

14. Never allow dust or mud to lie on the surface of the roads, for either of these will double the cost of maintenance.

15. Recollect that dust becomes mud at the first shower, and that mud forms a wet blanket which will keep a road in a filthy condition for weeks at a time, instead of allowing it to dry in a few hours.

16. Remember that the middle of the road should always be a little higher than the sides, so that the rain may run into the side gutters at once.

17. Never allow the water tables, gutters, and ditches to clog, but keep them clear the whole year through.

Potatoes as cattle-food.—As potatoes are very cheap, owing to the abundant crop all over the world this year, the experiments of M. Aimé Girard, a well known chemist in France, have, no doubt, excited a great deal of interest in this country and the States, as well as in Europe. The following is from the pen of Mr. T. Bowick, a frequent correspondent of the *Country Gentleman*. We call attention to the last three lines of the letter, which we have underlined:

Last winter was the second season of M. Aimé Girard's systematic trials, and the results fully confirm those of the first season. To begin with, the question whether raw or cooked potatoes are preferable may be at once dismissed with the statement that in the earlier season the latter proved greatly superior for both cattle and sheep. Last season M. Girard selected nine

(1) This, we regret to say, is the almost invariable practice in Montreal.—Ed.